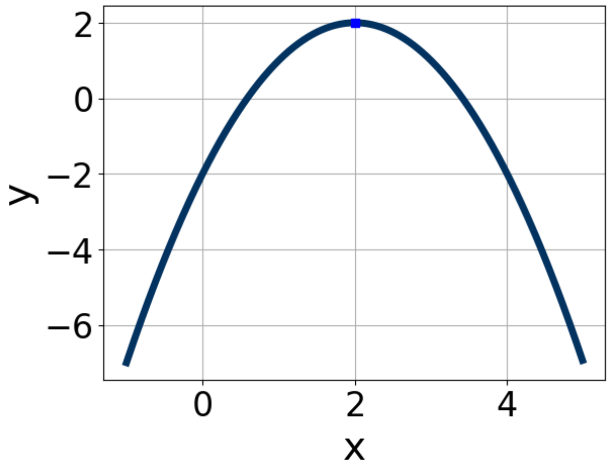
1. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [-1, 0], \quad b \in [-6, -3], \text{ and } \quad c \in [-4.1, -1.3]$

B. $a \in [-1, 0], \quad b \in [3, 8], \text{ and } \quad c \in [-4.1, -1.3]$

C. $a \in [-1, 0], \quad b \in [-6, -3], \text{ and } \quad c \in [-6.8, -4.6]$

D. $a \in [0, 3], \quad b \in [3, 8], \text{ and } \quad c \in [5.3, 6.8]$

E. $a \in [0, 3], \quad b \in [-6, -3], \text{ and } \quad c \in [5.3, 6.8]$

---

2. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$81x^2 - 27x - 10$$

A. $a \in [26.84, 27.15], \quad b \in [-8, -1], \quad c \in [1.2, 3.4], \text{ and } \quad d \in [1, 4]$

B. $a \in [8.76, 9.27], \quad b \in [-8, -1], \quad c \in [6.6, 13.6], \text{ and } \quad d \in [1, 4]$

C. $a \in [0.38, 1.02], \quad b \in [-48, -39], \quad c \in [0.8, 1.4], \text{ and } \quad d \in [18, 23]$

D. $a \in [1.84, 3.62], \quad b \in [-8, -1], \quad c \in [24.7, 28], \text{ and } \quad d \in [1, 4]$

E. None of the above.

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3. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 + 33x - 54 = 0$$

A. $x_1 \in [-13.5, -12.5]$ and $x_2 \in [0.11, 0.52]$

B. $x_1 \in [-6.5, -3.5]$ and $x_2 \in [1.14, 1.33]$

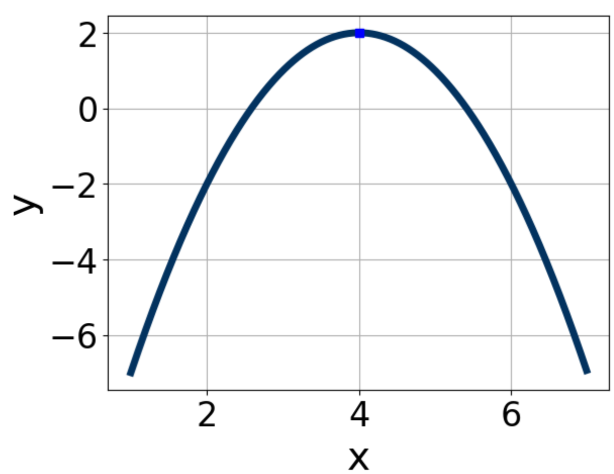
C. $x_1 \in [-1.5, 4.5]$ and $x_2 \in [3.34, 3.77]$

D. $x_1 \in [-13, -8]$ and $x_2 \in [0.49, 0.76]$

E. $x_1 \in [-46, -44]$ and $x_2 \in [11.7, 12.23]$

---

4. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [0, 5], \quad b \in [-11, -7], \text{ and } \quad c \in [17, 20]$

B. $a \in [-6, 0], \quad b \in [8, 10], \text{ and } \quad c \in [-14, -12]$

C. $a \in [-6, 0], \quad b \in [-11, -7], \text{ and } \quad c \in [-18, -16]$

D. $a \in [0, 5], \quad b \in [8, 10], \text{ and } \quad c \in [17, 20]$

E. $a \in [-6, 0], \quad b \in [-11, -7], \text{ and } \quad c \in [-14, -12]$

---

5. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-20x^2 - 13x + 3 = 0$$

A. $x_1 \in [-1.46, -0.41]$ and $x_2 \in [-0.43, 0.72]$

B. $x_1 \in [-4.25, -3.01]$ and $x_2 \in [15.81, 16.8]$

C. $x_1 \in [-21.08, -20.1]$ and $x_2 \in [18.98, 20.41]$

D. $x_1 \in [-0.59, -0.06]$ and $x_2 \in [0.27, 1.63]$

E. There are no Real solutions.

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6. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax+b)(cx+d); b \leq d$.

$$36x^2 - 60x + 25$$

A. $a \in [4.75, 6.2]$, $b \in [-8, -4]$, $c \in [5.94, 6.09]$, and $d \in [-7, -3]$

B. $a \in [0.76, 1.49]$, $b \in [-34, -25]$, $c \in [0.54, 1.72]$, and $d \in [-33, -26]$

C. $a \in [1.42, 2.16]$, $b \in [-8, -4]$, $c \in [17.56, 18.04]$, and $d \in [-7, -3]$

D. $a \in [17.82, 18.42]$, $b \in [-8, -4]$, $c \in [1.88, 2.43]$, and $d \in [-7, -3]$

E. None of the above.

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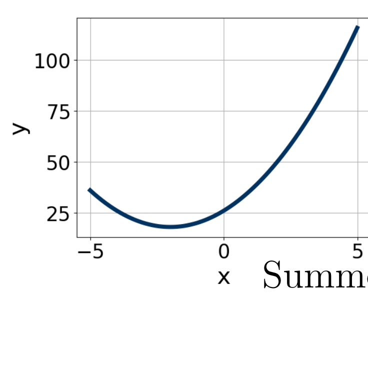
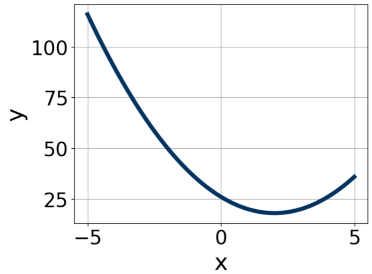
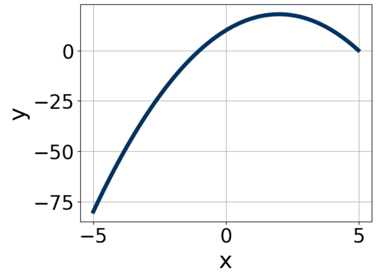
7. Graph the equation below.

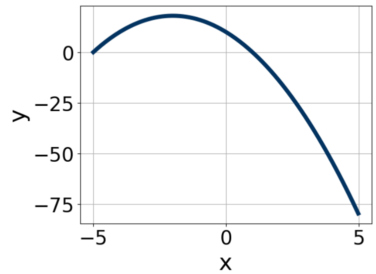
$$f(x) = -(x-2)^2 + 18$$



A.

B. 

C. 

D. 

E. None of the above.

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8. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$15x^2 + 8x - 5 = 0$$

A. $x_1 \in [-1.09, -0.48]$ and $x_2 \in [0.05, 0.52]$

B. $x_1 \in [-0.82, -0.3]$ and $x_2 \in [0.86, 1.21]$

C. $x_1 \in [-20.11, -18.33]$ and $x_2 \in [18.23, 19.14]$

D. $x_1 \in [-14.16, -13.12]$ and $x_2 \in [5.25, 5.92]$

E. There are no Real solutions.

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9. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 + 57x + 54 = 0$$

A. $x_1 \in [-9.26, -8.66]$ and $x_2 \in [-0.62, -0.53]$

B. $x_1 \in [-4.2, -3.05]$ and $x_2 \in [-1.52, -1.39]$

C. $x_1 \in [-14.3, -13.15]$ and $x_2 \in [-0.49, -0.39]$

D. $x_1 \in [-4.83, -3.98]$ and $x_2 \in [-1.44, -1.11]$

E. $x_1 \in [-45.02, -44.91]$ and $x_2 \in [-12.01, -11.94]$

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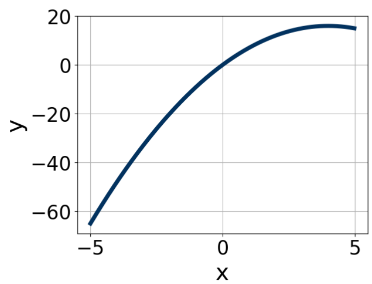
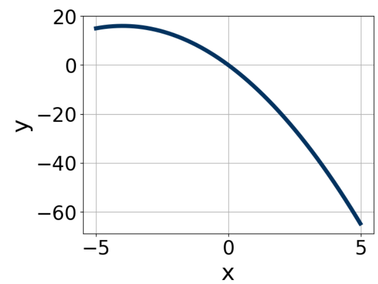
10. Graph the equation below.

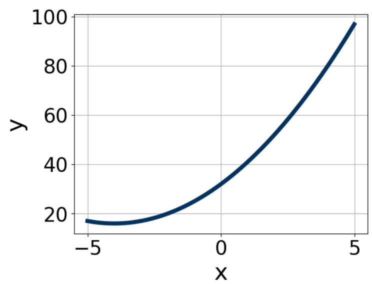
$$f(x) = -(x+4)^2 + 16$$



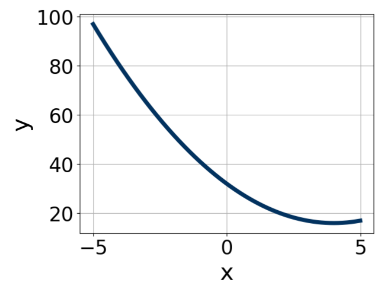
A.



C.



B.



D.

E. None of the above.
